

CLAIMS

What is claimed is:

1 1. A packaged resistor comprising:
2 a substrate;
3 a shaped thin film over the substrate;
4 a first insulating layer over the thin film and substrate, covering the
5 entire substrate;
6 posts on the first insulating layer, positioned at a first end and a second
7 end of the shaped thin film;
8 a conductive layer over the posts, covering tops of the posts, the
9 conductive layer in contact with the shaped thin film; and
10 the conductive layer on the tops of the posts for coupling the packaged
11 resistor to another device.

1 2. The packaged resistor of claim 1, further comprising:
2 a second insulating layer over the posts and conductive layer, the
3 second insulating layer leaving exposed the conductive layer on the tops of
4 the posts.

1 3. The packaged resistor of claim 1, further comprising:
2 a third insulating layer on the substrate and underneath the thin film.

1 4. The packaged resistor of claim 1, further comprising:
2 a protective layer on the conductive layer exposed on the tops of the
3 posts.

1 5. The packaged resistor of claim 1, wherein the thin film is a
2 material selected from among: tantalum nitride, nichrome, or tin oxide.

1 6. The packaged resistor of claim 1, wherein the thin film is
2 deposited in a rectangular pattern, and acts as a resistive material.

1 7. The packaged resistor of claim 1, wherein the first insulating
2 layer is a polyimide layer which provides compliancy to the packaged resistor.

1 8. The packaged resistor of claim 1, wherein the posts are made of
2 one or more of the materials including: silicon, gallium arsenide, silicon
3 germanium, silicon carbide, gallium phosphide, ceramic materials, sapphire,
4 quartz, polymer plastic, patterned plastic, epoxy, glass, Teflon, silicon dioxide,
5 or polysilicon.

1 9. The packaged resistor of claim 1, wherein the conductive layer is
2 gold.

1 10. The packaged resistor of claim 2, wherein the second insulating
2 layer is of polyimide which provides compliancy to the packaged resistor.

1 11. The packaged resistor of claim 3, wherein the third insulating
2 layer is of polyimide, which provides compliancy to the packaged resistor.

1 12. The packaged resistor of claim 4, wherein the protective layer
2 comprises a first layer of nickel and a second layer of flash gold.

1 13. An packaged inductor comprising:
2 a substrate;
3 a first insulating layer over the substrate;
4 posts over the insulating layer;
5 a conductive layer deposited on top of the posts and in a pattern on the
6 substrate.

1 14. The packaged inductor of claim 13, further comprising:
2 a protective layer over the conductive layer, the posts, and the first
3 insulating layer, the second insulating layer leaving exposed the conductive
4 layer on the top of the posts.

1 15. The packaged inductor of claim 13, wherein the first insulating
2 layer is a polyimide layer which provides compliancy to the packaged
3 inductor.

1 16. The packaged inductor of claim 13, wherein the posts are made
2 of one or more of the materials including:

1 17. The packaged inductor of claim 13, wherein the conductive layer
2 is gold.

1 18. The packaged inductor of claim 14, wherein the second
2 insulating layer is of polyimide which provides compliancy to the packaged
3 inductor.

1 19. The packaged inductor of claim 16, wherein the protective layer
2 comprises a first layer of nickel and a second layer of flash gold.

1 20. A packaged capacitor comprising:
2 a substrate;
3 a thin film over part of the substrate;
4 an insulating layer deposited over the entire substrate;
5 posts on the insulating layer;
6 a first conductive layer laid over the insulating layer, and extending to
7 a top of a first post; and
8 a second conductive layer, in contact with the thin film and extending
9 to the top of a second post.

1 21. The packaged capacitor of claim 20, further comprising:
2 a second insulating layer deposited over the first and second
3 conductive layers, covering the first and second conductive layers, except at
4 the top of the first and second post.

1 22. The packaged capacitor of claim 20, wherein the first conductive
2 layer is substantially parallel to the thin film, the thin film, the insulating
3 layer and the first conductive layer together forming the packaged capacitor.

1 23. The packaged capacitor of claim 20, further comprising:
2 a third insulating layer on the substrate and underneath the thin film.

1 24. The packaged capacitor of claim 20, further comprising:
2 a protective layer on the conductive layer exposed on the tops of the
3 posts.

1 25. The packaged capacitor of claim 20, wherein the thin film is
2 [insert one or more materials].

1 26. The packaged capacitor of claim 20, wherein the first insulating
2 layer is a polyimide layer which provides compliancy to the packaged
3 capacitor.

1 27. The packaged capacitor of claim 20, wherein the posts are made
2 of one or more of the materials including: silicon, gallium arsenide, silicon
3 germanium, silicon carbide, gallium phosphide, ceramic materials, sapphire,
4 quartz, polymer plastic, patterned plastic, epoxy, glass, Teflon, silicon dioxide,
5 or polysilicon.

1 28. The packaged capacitor of claim 20, wherein the conductive layer
2 is gold.

1 29. The packaged capacitor of claim 22, wherein the second
2 insulating layer is of polyimide which provides compliancy to the packaged
3 capacitor.

1 30. The packaged capacitor of claim 23, wherein the third insulating
2 layer is of polyimide, which provides compliancy to the packaged capacitor.

1 31. The packaged capacitor of claim 24, wherein the protective layer
2 comprises a first layer of nickel and a second layer of flash gold.

1 32. A packaged diode comprising:
2 a substrate;
3 an impurity implanted in the substrate;
4 an insulating layer over the substrate;
5 an anode and a cathode on the insulating layer;
6 a first conductive layer over the anode, the first conductive layer in
7 contact with the impurity;
8 a second conductive layer over the cathode, the second conductive
9 layer in contact with the substrate.

1 33. The packaged diode of claim 32, wherein the substrate is an N-
2 type substrate, and the impurity is a P-type impurity.

1 34. The packaged diode of claim 32, wherein the substrate is a P-type
2 substrate, and the impurity is an N-type impurity.

1 35. The packaged diode of claim 33, wherein the anode and the
2 cathode are posts.

1 36. The packaged diode of claim 35, wherein the posts are made of
2 one of the materials selected from: silicon, gallium arsenide, silicon
3 germanium, silicon carbide, gallium phosphide, ceramic materials, sapphire,
4 quartz, polymer plastic, patterned plastic, epoxy, glass, Teflon, silicon dioxide,
5 or polysilicon.

1 37. The packaged diode of claim 32, wherein the first and second
2 conductive layers are gold.

1 38. The packaged diode of claim 37, further comprising a connective
2 layer over the first and second conductive layers, the connecting layer
3 comprising:
4 a nickel layer; and
5 a flash gold layer.

1 39. The packaged diode of claim 32, further comprising a final
2 passivation layer, the final passivation layer covering the first conductive
3 layer and the second conductive layer, the substrate, and the cathode and the
4 anode, the final passivation layer leaving exposed on the first conductive
5 layer on top of the anode and the second conductive layer on top of the
6 cathode.

- 1 40. The packaged diode of claim 39, wherein the final passivation
2 layer is polyimide.